



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/696,592      | 10/28/2003  | Jeremy A. Johnson    | S02-161/US          | 7194             |

30869 7590 09/05/2006

LUMEN INTELLECTUAL PROPERTY SERVICES, INC.  
2345 YALE STREET, 2ND FLOOR  
PALO ALTO, CA 94306

|          |
|----------|
| EXAMINER |
|----------|

JAWORSKI, FRANCIS J

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

3768

DATE MAILED: 09/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/696,592

Applicant(s)

JOHNSON ET AL.

Examiner

Jaworski Francis J.

Art Unit

3768

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 - 49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-24,27,29-43 and 46 - 49 is/are rejected.
- 7) ☒ Claim(s) 2,25 - 26, 28 and 44 - 45 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4-30-04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to because labeled representations for boxed elements are lacking in Figs. 1 – 2 and 6 – 7, see 37 C.F.R. 1.83(a). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3 – 7, 12 – 14 , 17-18, 20 – 24, 27, 29 – 31, 36 – 37, 40 – 43, 46 and 49 are rejected under 35 U.S.C. 102(b) as being anticipated by Williams et al (US4339752) which teaches a plurality of antenna subarrays with adjacent elements which transmit energy in a plurality of directions for plural focal lengths as well as receive energy, and a set of subarray dependent filters (see abstract, col. 8 re element 112 and col. 10 – 11 bridging) which spectrally modify their inputs by Doppler and Fourier processing, as well as range interpolator 116, and means 114 for providing a coherent image of the subarray mapping blocks.

[Alternately stated, the Examiner is considering that applicants in the specification page 27 lines 11 – 14 propose that the claims' scope may be interpreted apart from the ultrasound field of application, and it appears that Williams et al is readable against the broad claims as directed to phased subarray imaging with spectral and interpolation filtering so as to form a composite high resolution coherent image.]

Claims 1, 3 – 9, 12 – 14, 17 –24, 27, 29 – 33, 36 – 37, 40-43, 46 and 49 are rejected under 35 U.S.C. 102(b) as being anticipated by Kurth et al (US4544927) insofar as Kurth et al (referring to col. 1 lines 11 – 15, the Brief Summary portion, cols. 5 – 6 regarding discrete Fourier transformation, and col. 7 bottom regarding interpolation

Art Unit: 3768

filtering and the col. 9 lines 17 – 41 equivalence statement) pertains to an imaging system which includes an initial subarray stage of adjacent transducer elements which may be an area subarray together with subarray filtering with spectral modifications and interpolation, and beamformation combination for display.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 47 - 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al or Kurth et al as argued against claim 27 above, and further in view of McLaughlin et al. While McLaughlin et al uses switched transducers col. 9 bottom which the

Art Unit: 3768

examiner would characterize as subarrays and collects energy over two spatial dimensions from a reduced number of broad beams and with subarray overlap, and with subarray dependent filtering (545, 940, 1270-related) and with interpolation to produce additional data, col. 17 lines 15 – 21, and with extension in principle to radars (col. 23 lines 37 – 42) , McLaughlin et al is in and of itself an announced alternative to phased array steering and focusing and attendant scanline activities, and the Examiner is applying here for the enucleated teaching to evidence the obviousness of averaging data in the general subarray context, see col. 15 lines 44 – 47, col. 17 lines 23 – 30.

Claims 10 – 11, 15 – 16, 34 – 35 and 38 – 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurth et al as applied above, and further in view of Henderson et al. It would have been obvious in view of the latter to use a lookup table and/or calculations for filter weights, see cols. 3 and 8 thereof, since Kurth et al invoke conventional interpolating for their beamforming architecture, see col. 7 bottom.

Claims 14 – 18 and 37 – 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurth et al in view of Henderson et al as applied to claim above, and further in view of Cooley et al (US6494838) insofar as the latter col. 10 line 33 – 15 line 61 in effectively pertaining to subarray (patch) beamformation including rectangular 2D subarray variants teaches in col. 7 lines 44 – 63 that a plurality of filters may be used in association with the subarrays for modality filtering and flash suppression for example.

***Allowable Subject Matter***

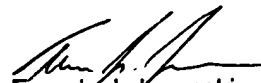
Art Unit: 3768

Claims 2, 25 – 26, 28 and 44 – 45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication should be directed to Jaworski Francis J. at telephone number 571-272-4738.

FJJ:fjj

08312006



Francis J. Jaworski  
Primary Examiner